NOC

3.7.2 Minimum beamwidth

A minimum value of 0.6° for the half-power beamwidth of the receiving antenna has been used for planning.

(MOD)

3.7.3 Reference patterns

The reference patterns for the co-polar and cross-polar components of the satellite receiving antenna used for planning at WARC-88 are given by curve A[1] and B respectively in Figure B.

The corresponding curves used for replanning at WRC-97 are given by curves A' and B' in Figure B, as specified in Recommendation ITU-R BO.1296.

In some cases, to reduce co-polar interference, the pattern shown in Figure C is used; this use is indicated in the Plan by note 1. This pattern is derived from an antenna producing an elliptical beam with fast roll-off in the main lobe assuming a "beamlet" beamwidth of 0.6°. Three curves for different values of φ_0 are shown as examples.

(MOD)

3.7.4 Pointing accuracy

The deviation of the receiving antenna beam from its nominal pointing direction must not exceed 0.1° in any direction. Moreover, the angular rotation of the receiving beam about its axis must not exceed ± 1°; this limit is not necessary for beams of circular cross-section using circular polarization.

(MOD)

3.8 System noise temperature

The satellite system noise temperature values generally used in the Plan at WARC ORB-88 are 1800 K for 17 GHz and 1500 K for 14 GHz[2]. For revising the Regions 1 and 3 Plan at WRC-97 these values are 900 K for 17 GHz and 750 K for 14 GHz.

---

[1] This antenna pattern is used in the revision of the Regions 1 and 3 Plan for the assignments notified, which are in conformity with this Appendix, brought into use, and for which the date of bringing into use has been confirmed to the Bureau before 27 October 1997.

[2] These system temperature values are still used for the assignments notified, which are in conformity with this Appendix, brought into use, and for which the date of bringing into use has been confirmed to the Bureau before 27 October 1997.

(MOD)

3.9 Polarization

In Regions 1 and 3, circular polarization was normally used for the purpose of planning the feeder links.

For the definitions of the terms "direct and indirect polarization", see Section 3.2.3 of Annex 5 to Appendix **30 (S30)**.

For the planning of the broadcasting-satellite service, circular polarization is generally used. However for implementation of assignments in the Regions 1 and 3 Plan, linear polarization may also be used subject to the successful application of the modification procedure of Article 4. Linear polarization is defined in Recommendation ITU-R BO.1212. This Recommendation should be used when analysing linearly polarized signal.

NOC

3.10 Automatic gain control

The down-link Plan was based on constant satellite output power. However, the feeder-link Plan does not take account of the effect of automatic gain control on board satellites. Up to 15 dB of automatic gain control is permitted, subject to no increase in interference to other satellite systems.

NOC

3.11 Power control

In Regions 1 and 3, a permitted increase which may be used to overcome rain fading for each assignment is included in the Plan.

In the calculation, in cases where satellites do not use common or adjacent channels cross-polarized to each other, the maximum permissible e.i.r.p. increase, which must not exceed 10 dB, corresponds to the amount of rain attenuation which occurs on the interfering feeder link.

(MOD)

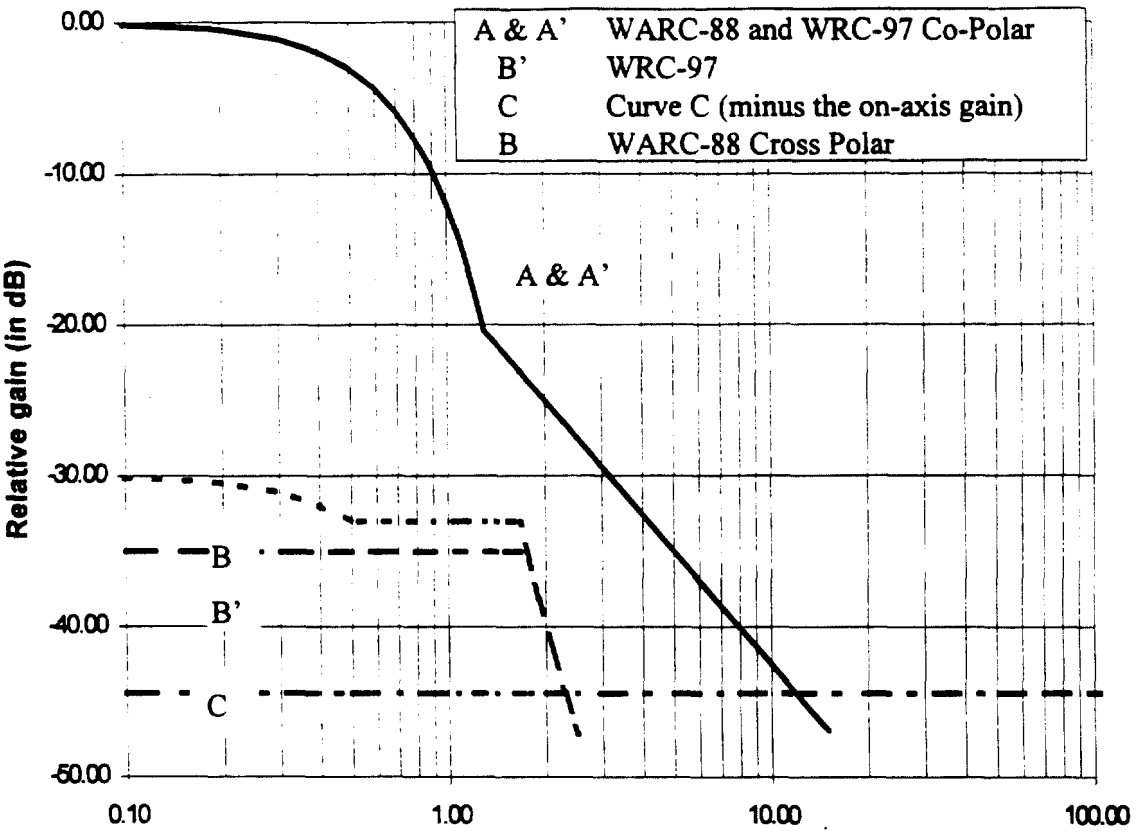


FIGURE B

Receiving space station circularly polarized antenna co-polar and cross-polar reference patterns for elliptical beams for planning in Regions 1 and 3

Formulas for the curves of Figure B

Co-polar relative gain (dB):

Curve A (WARC-88) and Curve A' (WRC-97)

$G = -12\ (\varphi/\varphi_o)^2$ for $0 \leq (\varphi/\varphi_o) < 1.3$

$G = -17.5 - 25\ \text{Log}\ (\varphi/\varphi_o)$ for $1.3 \leq (\varphi/\varphi_o)$

After intersection with Curve C, as Curve C

Cross-polar relative gain (dB):

Curve B (WARC-88)

$G = -30 - 12\ (\varphi/\varphi_o)^2$ for $0 \leq \varphi/\varphi_o \leq 0.5$

$G = -33$ for $0.5 < \varphi/\varphi_o \leq 1.67$

$G = 40 - 40\ \text{Log}\ (\varphi/\varphi_o - 1)$ for $1.67 < \varphi/\varphi_o$

After intersection with Curve C, as Curve C

Curve B' (WRC-97)

$G = -35$ for $0 \leq (\varphi/\varphi_o) < 1.75$

$G = -40 - 40\ \text{Log}\ ((\varphi/\varphi_o) - 1)$ for $1.75 \leq (\varphi/\varphi_o)$

After intersection with Curve C, as Curve C

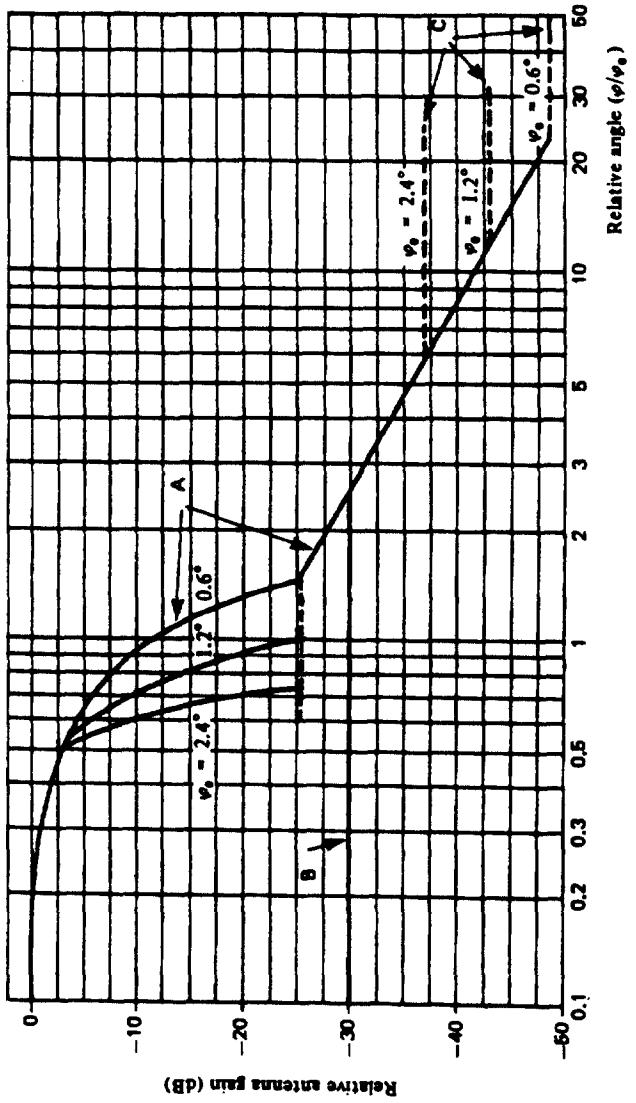
Curve C: Minus the on-axis gain (Curve C in the above figure illustrates the particular case of an antenna with an on-axis gain of 44.44 dBi)

where: φ = off-axis angle (degrees)

φ_0 = cross-sectional half-power beamwidth in the direction of interest (degrees).

The relationship between the maximum gain of an antenna and the half-power beamwidth can be derived from the expression in section 3.7.1 above.

NOC



dC

FIGURE C

Reference patterns for co-polar and cross-polar components for satellite receiving antennas with fast roll-off in the main beam for Regions 1 and 3

(MOD)

Curve A: Co-polar component (dB relative to main beam gain)

$-12\ (\varphi/\varphi_0)^2$ for $0 \le \varphi/\varphi_0 \le 0.5$

$-33.33\ \varphi_0^2\ (\varphi/\varphi_0 - x)^2$ for $0.5 < \varphi/\varphi_0 \le \frac{0.87}{\varphi_0} + x$

-25.23 for $\frac{0.87}{\varphi_0} + x < \varphi/\varphi_0 \le 1.45$

$-(22 + 20 \log (\varphi/\varphi_0))$ for $\varphi/\varphi_0 > 1.45$

After intersection with Curve C: as Curve C.

Curve B: Cross-polar component (dB relative to main beam gain)

-30 for $0 \le \varphi/\varphi_0 < 2.51$

After intersection with curve A: as curve A.

Curve C: Minus the on-axis gain (Curves A and C represent examples for three antennas having different values of φ_0 as labelled in Figure C. The on-axis gains of these antennas are 37, 43 and 49 dBi, respectively).

where:

φ = off-axis angle (degrees);

φ_0 = dimension of the minimum ellipse fitted around the feeder-link service area in the direction of interest (degrees);

$x = 0.5\left(1 - \frac{0.6}{\varphi_0}\right)$

(MOD)

3.11.1 Method for determination of the increase in e.i.r.p. during rain attenuation for an assignment over the Plan value

Condition to be observed

The increase in e.i.r.p. of the assignment studied must not entail an impairment of more than 0.5 dB of the feeder-link equivalent protection margin of any other assignment to any other administration.

Calculation method

(MOD)

Step.1 Compile a list of all assignments of other administrations (A, B, C, . . .) in the same orbital position and the positions within ± 6° (or further if no station is found within 6° arc) liable to suffer interference from the assignment studied.

(MOD)

Step.2 Calculate the feeder-link equivalent protection margin of assignment A in free space conditions, taking account of all interference sources affecting A at the worst test points, namely:

- for assignment A: the point corresponding to the minimum *C/N* ratio;
- for each interference source affecting A: the point corresponding to the maximum interference power affecting A.

Step.3 Introduce for the assignment studied the rain attenuation for 0.1% of the worst month and the corresponding rain depolarization value.

Step.4 Recalculate the feeder-link equivalent protection margin of assignment A at the worst test points, namely:

- for assignment A: the test point used in Step 2 above;
- for the assignment studied: the test point corresponding to the maximum interference power affecting A.

At this stage, the e.i.r.p. of the assignment studied is that contained in the Plan.

Step.5 Increase the e.i.r.p. of the assignment studied by 0.1 dB and recalculate the equivalent up-link margin of A as in Step 4 above.

Step.6 Repeat the operation of Step 5above until the equivalent up-link margin of assignment A is impaired by more than 0.5 dB in relation to the value found under Step 2 above, or until the e.i.r.p. increase exceeds 10 dB or the rain attenuation (see Step 3). Adopt the e.i.r.p. increase in the preceding iteration step.

Step.7 Repeat the operations in Step 2 to Step 6 above, considering the assignments B, C, . . .

Step.8 Adopt the smallest of the increases in e.i.r.p. found under Step 6 above for the various assignments A, B, C, . . .

(MOD)

3.11.2 Propagation model

For the calculation of rain attenuation for 0.1% of the worst month, the model described in Section 2.2 of this Annex should be used. It shall be assumed that the 0.1% value is 3.3 times the 1% value in dB.

Rain depolarization shall be calculated on the basis of attenuation, using the method described in Section 2.4 of this Annex.

NOC

3.11.3 Variation of power with rain attenuation

The instantaneous increase in power to overcome rain attenuation must not exceed the bounds given by the characteristics shown in Figure 5.

NOC

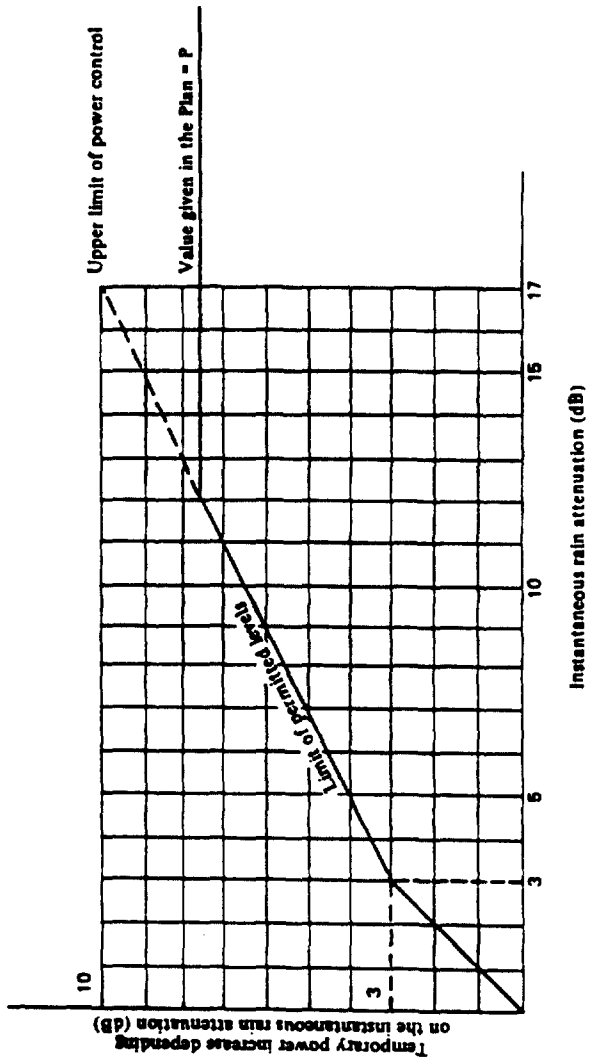


FIGURE 5

Characteristic for up-link power control

P: The value of permitted increase given in the Plan, or calculated by the IFRB, which varies for each assignment. The upper limit of this value is 10 dB.

(MOD)

3.11.4 Procedures

An administration wishing to introduce power control may use a value not exceeding that given inArticle 9A of this Appendix or it may request, where this is possible, the use of a higher value for a given earth station location. In this latter case, it shall request the Bureau to calculate the maximum permissible value for that site. The administration shall provide the Bureau with the coordinates of the station, the proposed antenna characteristics, including the off-axis co-polar and cross-polar characteristics, and the rain climatic zone.

The Bureau shall calculate the permissible increase in power using the method described in Section 3.11.1.

The Bureau shall communicate the results of the calculations to the requesting administrations as well as to those administrations whose feeder-link equivalent protection margin is reduced.

In any case, the permitted increase in e.i.r.p. above that given in the Plan shall not exceed 10 dB.

In the event of modifications to the Plan, the Bureau shall recalculate the value of power control for the assignment subject to the modification and insert the appropriate value for that assignment in of the Plan. A modification to the Plan shall not require the adjustment of the values of permissible power increase of other assignments in the Plan.

(SUP)

3.12 Site diversity

(MOD)

3.12 Depolarization compensation

The Plan is developed without the use of depolarization compensation. Depolarization compensation is permitted only to the extent that interference to other satellites does not increase by more than 0.5 dB[1] relative to that calculated in the feeder-link Plan.

(MOD)

3.13 Amplitude-modulation to phase-modulation conversion

The degradation caused by AM to PM conversion was taken into account when calculating the carrier-to-noise ratio of the feeder link. A value of 2.0 dB was allowed.

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[1] This margin has to be shared between power control effects and depolarization compensation effects when both are involved (see Section 3.11).

(MOD)

3.14 Orbit positions

The Plan is generally based on the use of regular arrangements of 6° from 37° W to 29° E and from 38° E to 160° W. The orbital positions are those given in the Plan.

The Regions 1 and 3 Plan is also based on the grouping of space stations in nominal orbital positions of ±0.2° from the centre of the cluster.

Generally, the space stations are shown in the Plan in the centre of the cluster. However, in some cases, the space stations are shown at the edge of the cluster. Administrations may locate satellites within a cluster at any orbital position within that cluster, provided they obtain the agreement of other administrations having assignments to space stations in the same cluster.

ADD

3.15 Satellite station keeping

Space stations in the broadcasting-satellite service must be maintained in position with an accuracy equal to or better than ±0.1° in the E-W direction. For such space stations, the maintenance of tolerance ±0.1° in the N-S direction is recommended but is not a requirement.

NOC

4 Basic technical characteristics for Region 2

PART III

Resolutions revised by the WRC-97

New Resolutions adopted by theWRC-97

Recommendations revised by the WRC-97

New Recommendations adopted by the WRC-97

List of Resolutions and Recommendations approved for suppression by the WRC-97

RESOLUTION 13 (Rev.WRC-97)

FORMATION OF CALL SIGNS AND ALLOCATION OF NEW INTERNATIONAL SERIES

The World Radiocommunication Conference (Geneva, 1997),

considering

the increasing demand for call signs justified by the increased number of Member States of the Union and by the increased requirements of countries which are already Member States,

believing

that call signs already in use should, as far as possible, not be changed,

noting

a) that the former call-sign series formed of three letters, or a figure and two letters, having been exhausted, a new series has been introduced formed of a letter, a figure and a letter; but in no case may the figure be 0 or 1;

b) that the method mentioned in *noting* a) is not applicable to series beginning with one of the following letters: B, F, G, I, K, M, N, R, W,

resolves

1 that the Director of the Radiocommunication Bureau shall continue to urge administrations:

1.1 to make maximum use of the possibilities of the series at present allocated, in order to avoid, as far as possible, further requests;

1.2 to review the call-sign assignments they have already made from their present allocations, with a view to releasing any series and placing them at the disposal of the Union;

2 that the Director shall, upon request, furnish advice to administrations on the means of effecting the greatest economy, which should be the rule, in the use of a series of call signs;

3 that if, nevertheless, before the next competent world radiocommunication conference, it appears that all the possibilities of the present system of forming call signs will be exhausted, the Director shall:

3.1 explore the possibility of extending the present allocations of international call-sign series by lifting the limitation on use of the letter "Q" and the digits "0" and "1";

3.2 issue a circular-letter:

3.2.1 explaining the position;

3.2.2 urging administrations to send in their proposals for possible solutions;

4 that, from the information thus submitted, the Director shall prepare a report, together with his comments and suggestions, for submission to the next competent world radiocommunication conference.

RESOLUTION 26 (Rev.WRC-97)

FOOTNOTES TO THE TABLE OF FREQUENCY ALLOCATIONS IN ARTICLE S5 OF THE RADIO REGULATIONS

The World Radiocommunication Conference (Geneva, 1997),

considering

a) that footnotes are an integral part of the Table of Frequency Allocations in the Radio Regulations and, as such, form part of an international treaty text;

b) that footnotes to the Table of Frequency Allocations should be clear, concise and easy to understand;

c) that footnotes should relate directly to matters of frequency allocation;

d) that, in order to ensure that footnotes allow modification of the Table of Frequency Allocations without introducing unnecessary complications, principles relating to the use of footnotes are needed;

e) that, currently, footnotes are adopted by competent world radiocommunication conferences and any addition, modification or deletion of a footnote is considered and adopted by the competent conference;

f) that some problems concerning country footnotes may be resolved through the application of a special agreement envisaged by Article S6 of the Radio Regulations;

g) that, in certain cases, administrations are confronted with major difficulties due to inconsistencies or omissions in footnotes;

h) that, in order to keep the footnotes to the Table of Frequency Allocations up to date, there should be clear and effective guidelines for additions, modifications and deletions of footnotes,

resolves

1. that, wherever possible, footnotes to the Table of Frequency Allocations should be confined to altering, limiting or otherwise changing the relevant allocations rather than dealing with the operation of stations, assignment of frequencies or other matters;

2. that the Table of Frequency Allocations should include only those footnotes which have international implications for the use of the radio-frequency spectrum;

3. that new footnotes to the Table of Frequency Allocations should only be adopted in order to:

a) achieve flexibility in the Table of Frequency Allocations;

b) protect the relevant allocations in the body of the Table and in other footnotes in accordance with Section II of Article S5 of the Radio Regulations;

c) introduce either transitional or permanent restrictions on a new service to achieve compatibility; or

d) meet the specific requirements of a country or area when it is impracticable to satisfy such needs otherwise within the Table of Frequency Allocations;

4. that footnotes serving a common purpose should be in a common format, and, where possible, be grouped into a single footnote with appropriate references to the relevant frequency bands,

further resolves

1. that any addition of a new footnote or modification of an existing footnote should be considered by a world radiocommunication conference only when:

a) the agenda of that conference explicitly includes the frequency band to which the proposed additional or modified footnote relates; or

b) the frequency bands to which the desired additions or modifications of the footnote belong are considered during the conference and the conference decides to make a change in those bands; or

c) the addition or modification of footnotes is specifically included in the agenda of the conference as a result of the consideration of proposals submitted by one or more interested administration(s);

2. that recommended agendas for future world radiocommunication conferences should include a standing agenda item which would allow for the consideration of proposals by administrations for deletion of country footnotes, or country names in footnotes, if no longer required;

3. that in cases not covered by *further resolves* 1 and 2, proposals for new footnotes or modification of existing footnotes could exceptionally be considered by a world radiocommunication conference if they concern corrections of obvious omissions, inconsistencies, ambiguities or editorial errors and have been submitted to ITU as stipulated in No. 316 of the Convention (Geneva, 1992),

urges administrations

1. to review footnotes periodically and to propose the deletion of their country footnotes or of their country names from footnotes, as appropriate;

2. to take account of the *further resolves* above in making proposals to world radiocommunication conferences.

RESOLUTION 27 (Rev.WRC-97)

REFERENCES TO ITU-R AND ITU-T RECOMMENDATIONS IN THE RADIO REGULATIONS

The World Radiocommunication Conference (Geneva, 1997),

considering

a) that the principles of incorporation by reference were adopted by the 1995 World Radiocommunication Conference and have been revised by this Conference (see Annex 1 to this Resolution);

b) that there are provisions of the Radio Regulations which employ mandatory incorporation by reference but fail to make explicit reference to the ITU-R or ITU-T Recommendations incorporated;

c) that the 1997 Conference Preparatory Meeting for this Conference urged administrations to give further consideration to the status of material incorporated by reference:

- using the initial assessment provided by the Bureau in the CPM Report and the set of principles given in Annex 1 to this Resolution;
- noting that mandatory references shall be explicit and use the appropriate regulatory language;
- taking into account the factors set out in Annex 2 to this Resolution;

d) that the Director of the Bureau has drawn up a list (see Annex 1 to the Report of the Conference Preparatory Meeting to this Conference) of the provisions of the Radio Regulations using incorporation by reference, which provides an initial assessment of the status of each reference and forms the basis for the work on appropriate referencing, examples of which are contained in Annex 3 to this Resolution;

e) that the Radiocommunication Bureau has drawn up a list, contained in Annex 4 to this Resolution, of the ITU-R Recommendations to which explicit reference is made in the Radio Regulations,

resolves

that ITU-R and ITU-T Recommendations incorporated or proposed for incorporation by reference in the provisions of the Radio Regulations be identified and examined at WRC-99, with a view to establishing the correct method of reference in accordance with the principles set out in Annex 1 to this Resolution and taking into account the factors listed in Annex 2 to this Resolution, in order to complete the simplification of the Radio Regulations in respect of incorporation by reference,

instructs the Director of the Radiocommunication Bureau

to arrange for a review of the provisions of the Radio Regulations containing references to ITU-R or ITU-T Recommendations and propose suitable recommendations to the Conference Preparatory Meeting for inclusion in its report to WRC-99, using the list of provisions contained in Annex 3 to this Resolution together with the guidance contained in Annexes 1 and 2 to this Resolution, and taking into account the list of ITU-R Recommendations contained in Annex 4 to this Resolution,

urges administrations

to use the Report of the Conference Preparatory Meeting to WRC-99 in order to prepare their proposals on incorporation by reference to that Conference.

MOD

ANNEX 1 TO RESOLUTION 27 (Rev.WRC-97)

PRINCIPLES OF INCORPORATION BY REFERENCE

1. Where references are non-mandatory, it is not necessary to establish specific conditions in applying the texts quoted. In such cases, reference could, for example, be made to "the latest version" of a Recommendation.

2. Mandatory references to Resolutions or Recommendations of a world radiocommunication conference (WRC) are acceptable without restriction, since such texts will have been agreed by a WRC.

3. Where mandatory references are suggested, and the relevant texts are brief, the referenced material should be incorporated in the body of the Radio Regulations.

4. If, on a case-by-case basis, it is decided to incorporate material by reference on a mandatory basis, then the following provisions shall apply:

4.1 the referenced text shall have the same treaty status as the Regulations themselves;

4.2 the reference must be explicit, specifying the specific part of the text (if appropriate) and the version or issue number;

4.3 the referenced text must be adopted by the Plenary of a competent WRC, but should not be part of the Final Acts;

4.4 all texts incorporated by reference must be readily available, by being published in a separate volume;

4.5 if, between WRCs, a referenced text (e.g. an ITU-R Recommendation) is updated, the reference in the Radio Regulations shall continue to apply to the original version until such time as a competent WRC agrees to incorporate the new version of the reference. The mechanism for considering such a step is given in Resolution **28 (WRC-95)**.

ADD

ANNEX 2 TO RESOLUTION 27 (Rev.WRC-97)

FACTORS TO BE CONSIDERED FOR THE FURTHER APPLICATION OF INCORPORATION BY REFERENCE

In reviewing the provisions of the Radio Regulations employing references to other texts, administrations and study groups should address the following factors:

1) whether each reference is mandatory, i.e. incorporated by reference, or non-mandatory;

2) whether in existing non-mandatory references, or mandatory references which are determined to be of non-mandatory character, appropriate linking language is used, e.g. the words "should" or "may";

3) whether in existing mandatory references, or other types of reference which are determined to be of mandatory character, clear mandatory linking language is used, e.g. the word "shall";

4) whether the incorporated ITU-R or ITU-T Recommendation(s) are explicitly identified;

5) where referenced ITU-R or ITU-T Recommendations are not explicitly identified, determine which ones should be identified;

6) whether text incorporated from ITU-R or ITU-T Recommendations should be placed directly in the Radio Regulations instead of using incorporation by reference;

7) if the ITU-R or ITU-T Recommendation to be incorporated is, as a whole, unsuitable as treaty status text, whether to limit the reference to those portions of the ITU-R or ITU-T Recommendation which are of a suitable nature or to place the mandatory portion directly in the Radio Regulations.

ADD

ANNEX 3 TO RESOLUTION 27 (Rev.WRC-97)

PROVISIONS OF THE RADIO REGULATIONS REFERRING TO ITU-R AND ITU-T RECOMMENDATIONS

A) Provisions of Articles of the Simplified Radio Regulations referring to ITU-R and ITU-T Recommendations

RR item	Remark
S5.199 S5.287 S5.288 S19.38 S19.48 S19.92 S47.26 S47.27 S47.28 S47.29 S50.9 S51.35 S51.41 S51.77 S52.25 S52.27 S52.31 S52.69 S52.159 S52.181 S52.195 S52.222.1 S52.224 S52.229 S52.231 S52.240 S55.1 S57.1	The reference to an ITU-R Recommendation in this provision is of a **mandatory** character and the referenced text is **explicitly** identified. Ensure that a standard method of reference is used.
S1.14 S5.511A S52.23 S52.235+	The reference to an ITU-R Recommendation in this provision seems to be of a **mandatory** character and the referenced text is **explicitly** identified, but a **non-standard wording** is used in this respect. There is a need to **review** these provisions with a view to using a standard wording. + The application of this provision is not mandatory but, if used, the referenced procedures are.

S3.2 S5.138 S5.458C S13.19 S21.1 S29.13 S32.5 S32.9.3 S32.21 S32.43 S32.64 S33.17 S33.37 S33.41 S34.1 S34.2 S51.25 S52.112 S58.1*	The incorporation by reference of an ITU-R Recommendation or an ITU-T Recommendation* in this provision is of a **mandatory** character, but the referenced text is **not explicitly** identified. There is a need to **review** these provisions with a view to identifying the referenced text explicitly and ensure that a standard method of reference is used.
S5.208A S5.503A S16.6 S21.2.2 S21.4.1 S29.12 S32.7 S51.71 S52.32 S52.63 S52.148 S52.152 S52.153 S52.234 S54.2+ S56.2	The reference to an ITU-R Recommendation in this provision is of a **non-mandatory** character, but the referenced text is **explicitly** identified. No need for **review**, unless administrations wish to consider changing the character of this provision. + Consider whether the application and use of the procedures referenced are mandatory.

S1.156 S3.4 S3.7 S3.14 S5.474 S9.50.1 S15.10 S15.12.1 S15.13.1 S16.1 S19.3 S19.23 S19.24 S19.112* S19.115* S19.126* S21.6.1 S21.12.1 S21.16.1 A.S22.1 S22.22.2 S22.26 S30.1 S56.7*	The reference to an ITU-R Recommendation or an ITU-T Recommendation* in this provision is of a **non-mandatory** character and the referenced text is **not explicitly** identified. No need for review, unless administrations wish to consider changing the character of this provision.
S16.2 S19.83 S52.149 S52.188 S52.192 S52.213	The reference to an ITU-R Recommendation in this provision is of an **undefined** character, but the referenced text is **explicitly** identified. There is a need to **review** these provisions with a view to indicating the character of the referenced text (i.e. mandatory or non-mandatory).
S1.153 S1.167 S26.6	The reference to an ITU-R Recommendation in this provision is of an **undefined** character and the referenced text is **not explicitly** identified. There is a need to **review** these provisions with a view to indicating the character of the referenced text (i.e. mandatory or non-mandatory) and, if it becomes mandatory, to identify the referenced text explicitly.

B) Parts of Appendices S1 to S18 to the Simplified Radio Regulations referring to ITU-R Recommendations and ITU-T Resolutions and Recommendations

RR/Ap. Item	Remark
• AP S4, Annex 2A, C.11, item d) • AP S5, Table S5-1, calculation method re No. S19.17A • AP S5, Annex 1, Tables 1-4	The reference to an ITU-R Recommendation in this provision is of a **mandatory** character and the referenced text is **explicitly** identified. Ensure that a standard method of reference is used.
• AP S1, item 3 (3.2) • AP S5, Table S5-1, threshold/condition re No. S19.21 • AP S5, Table S5-1, calculation method re No. S19.21 • AP S13, RR 3259A • AP S16*, Sect. III, item 5	The reference to an ITU-R Recommendation or an ITU-T Resolution or Recommendation* in this provision is of a **mandatory** character, but the referenced text is **not explicitly** identified. There is a need to **review** these provisions with a view to identifying the referenced text explicitly and to ensure that a standard method of reference is used.
• AP S4, Annex 2A, C.8 • AP S5, Annex 1, paragraphs 1.2.1 and 1.2.3.2	The reference to an ITU-R Recommendation in this provision is of a **non-mandatory** character, but the referenced text is **explicitly** identified. No need for review, unless administrations wish to consider changing the character of this provision.
AP S1, item 2 AP S2 AP S3, Table AP S3, item 12 AP S3, item 13 AP S11, Part B, (3.) AP S12, item 6) AP S13, RR 2937A AP S13, RR 3340	The reference to an ITU-R Recommendation in this provision is of a **non-mandatory** character and the referenced text is **not explicitly** identified. No need for review, unless administrations wish to consider changing the character of this provision.

ADD

ANNEX 4 TO RESOLUTION 27 (Rev.WRC-97)

LIST OF ITU-R RECOMMENDATIONS REFERRED TO IN THE RADIO REGULATIONS[2]

Recommendation	Title	Status[1]	Document	RR provision No[3]
ITU-R M.257-3	Sequential Single Frequency selective-calling system for use in the maritime mobile service	NOC	1995 M-series Fascicle, Part 3, p. 145	**S19.38**, S19.83, **S19.92**, **S52.222.1**, **S52.235**, S54.2, AP S13 (A5, para. 11)
ITU-R SF.356-4	Maximum allowable values of interference from line-of-sight radio-relay systems in a telephone channel of a system in the fixed-satellite service employing frequency modulation, when the same frequency bands are shared by both systems	NOC	1994 SF-series	AP S7, 2.3.1 Note 2
ITU-R SF.357-4	Maximum allowable values of interference in a telephone channel of an analogue angle-modulated radio-relay system sharing the same frequency bands as systems in the fixed-satellite service	**MOD**	Blue 4-9/BL/1	AP S7, 2.3.1 Note 2
ITU-R F.405-1	Pre-emphasis characteristics for FM radio-relay systems for television	NOC	1990 Series, Volume IX	AP S30 (An. 5, 3.1.1)

[1] Status as of date of the end of the 1997 Radiocommunication Assembly.

[2] This list does not include ITU-R Recommendations referred to in WARC/WRC Resolutions and Recommendations.

[3] The provisions indicated in bold make reference to the listed ITU-R Recommendation in a mandatory manner, i.e. incorporated by reference.

ITU-R TF.460-6	Standard-frequency and time-signal emissions	**MOD**	Document 7/1020	**S1.14**
ITU-R S.465-5	Reference earth-station radiation pattern for use in coordination and interference assessment in the frequency range from 2 to about 30 GHz	**MOD**	1994 S-series	AP S30 (An. 6, 2.1)
ITU-R M.476-5	Direct-printing telegraph equipment in the maritime mobile service	NOC	1995 M-series Fascicle, Part 3, p. 60	S19.83, **S51.41**
ITU-R S.483-3	Maximum permissible level of interference in a television channel of a geostationary-satellite network in the fixed-satellite service employing frequency modulation, caused by other networks of this service	**MOD**	Blue - 4/BL/10	AP S30 (An. 6, 1.5, Note 5)
ITU-R M.489-2	Technical characteristics of VHF radiotelephone equipment operating in the maritime mobile service in channels spaced by 25 kHz	NOC	1995 M-series Fascicle, Part 3, p. 150	**S51.77**, S52.182, **S52.231, AP S13 (A2, para. 10 (1))**
ITU-R M.492-6	Operational procedures for the use of direct-printing telegraph equipment in the maritime mobile service	NOC	1995 M-series Fascicle, Part 3, p. 72	**S52.27**, S56.2
ITU-R M.493-9	Digital selective calling system for use in the maritime mobile services	**MOD**	Document M/1009	S54.2
ITU-R M.541-8	Operational procedures for the use of digital selective-calling (DSC) equipment in the maritime mobile service	**MOD**	1997 M-series Fascicle, p. 339 + Document 8/1010	**S51.35**, S52.148, S52.149, S52.152, S52.153, **S52.159**, S54.2
ITU-R M.625-3	Direct-printing telegraph equipment employing automatic identification in the maritime mobile service	NOC	1995 M-series Fascicle, Part 3, p. 1	**S19.83, S51.41**